

REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Editorially amend the specification.
2. Editorially amend claims 2 – 3, 5, 8 – 9, and 11 - 12.
3. Add new claims 14 – 20.
4. Respectfully traverse all prior art rejections.

B. THE NEW CLAIMS

New independent claim 14 resembles original independent claim 1, but includes the act of “detecting activation of a combinational multimedia session involving circuit switched and packet switched sessions...”. Such limitation is supported by the original disclosure, including but not limited to the first full paragraph of page 6 of the specification. New dependent claim 15 is also supported, e.g., by the first full paragraph of page 6 of the specification; new dependent claim 16 is supported, e.g., by the second full paragraph of page 6 of the specification.

New independent claim 17 shares a similar preamble and first paragraph as new independent claim 14, and a second paragraph which is similar to subject matter of original independent claim 8. New dependent claims 18 – 20 (dependent upon new independent claim 17) are somewhat similar to claims 10 – 12, respectively.

C. PATENTABILITY OF THE CLAIMS

Claims 1-3 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Publication 2002/0054578 to Zhang et al in view of U.S. Publication 2002/0048268 to Menon et al. Claims 4-7 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Publication 2002/0054578 to Zhang et al in view of U.S. Publication 2002/0048268 to Menon et al. Claims 8 and 10-12 stand rejected under 35 USC §103(a) as being

unpatentable over U.S. Publication 2002/0054578 to Zhang et al in view of U.S. Publication 2002/0048268 to Menon et al. Claims 9 and 13 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Publication 2002/0054578 to Zhang et al in view of U.S. Publication 2002/0048268 to Menon et al. All prior art rejections are respectfully traversed for at least the following reasons.

Applicants' disclosure addresses a problem of ensuring a steady flow of data across a radio link in which data packets are transmitted over two cascaded radio links between the user terminal. Consider the case of Radio Link A and Radio Link B as shown in Applicants' Fig. 2. If Radio Link A needs to perform a re-transmission of a Protocol Data Unit (PDU) from the sending terminal to an RNC, owing to a selective repeat function the RNC will continue to receive subsequent PDUs. However, because of the in-sequence delivery function the RNC will be unable to forward any packets to an RNC serving terminal B until the missing PDU number has been received correctly. This produces jitter in the outgoing data flow of Radio Link A. The problem occurs at Radio Link B, where the jitter in the incoming data flow from the RNC serving terminal A may cause the buffer at the RNC serving terminal B to drain. This in turn leads to radio link under-utilization, which in turn prolongs the time for transmitting data. The present invention addresses this problem by disabling an in-sequence delivery option of packets.

The office action rejects claims 1 to 3 and claims 4 to 7 under 35 USC 103(a) as being unpatentable over US 2002/0054578 (referred to as Zhang) in view of US 2002/0048268 (referred to as Menon). The office action opines that Zhang teaches a method of optimising the use of radio resources in a mobile radio communication system during a combinational multi media system as required by present claim 1.

A feature of present independent claims 1 and new independent claim 14, is "at a sending radio network control node, disabling an in-sequence delivery option of packets between the radio network control nodes of the radio access network serving the user

terminals for the packet switched session". A feature of present independent claim 4 is "comprising disabling an in-sequence delivery option for packets sent from the radio network controller to another radio network controller".

The office action considers that Zhang in paragraph [0185] discloses these feature. Yet Applicants find no disclosure in Zhang of disabling an in-sequence delivery option of packets. The cited Zhang paragraph instead seems to indicate a mechanism for adaptive use of re-transmission requests. Zhang discloses that "optimal resource allocation is then performed to achieve the minimal objective (e.g. distortion or power consumption). The channel decoder reconstructs packets through a channel decoder process. For ELs the outputs of the channel decoder is directed for source decoding; while for BLs, if residual errors still exist, the receiver decides whether to send a retransmission request based on the delay band of the packet. If the delay band has expired, the request will not be sent. Otherwise, when receiving a retransmission request, the sender only transmits a necessary higher protection part of the corresponding packet".

In other words paragraph [0185] of Zhang discloses abandoning re-transmission of some packets. This is in no way equivalent to disabling in-sequence delivery. The disclosure of Zhang would lead to some packets not being re-transmitted, which would lead to data loss. Using Applicants' technique of disabling in-sequence delivery, on the other hand, the ARQ protocol may still be fully reliable, but the order of packet reception would not be the same as the order of packet transmission.

Zhang makes no mention whatsoever of disabling an in-sequence delivery option of packets. Furthermore, as Zhang does not disclose that the signals are transported over two cascaded radio links, as required by the present claim 1 and new independent claim 14, the problem addressed by claims 1 and 14 would not arise, and so the skilled person would not be motivated to look to the teachings of Zhang. Even if the skilled person were motivated to look to the teachings of Zhang, Zhang would lead the skilled person to

abandon re-transmission of certain packets rather than disable an in-sequence delivery option of packets between radio network control nodes of radio access networks serving the user terminals.

Dependent claims 2 to 3 and 5 to 7 and 15 to 16 are novel and non-obvious by virtue of their dependency upon independent claim 1, independent claim 4, and independent claim 14, respectively.

Claims 8 to 12 and 17 to 20 address a problem caused by the Transmission Control Protocol (TCP) which uses a slow start mechanism. TCP defines a window which restricts the number of unacknowledged IP packets which can be in transit at any given time. The window size is increased as acknowledgements are received, and is decreased if no acknowledgements are received for some specified period. The rate at which the window is increased depends on the ACKs received and sent from the receiver. If the ACKs are delayed, the slow start period is prolonged. During slow start, TCP cannot fully utilize a given radio link which means that transfer times for multimedia content such as pictures increases. Applicants' technology is concerned with a push-to-watch service, in which the pictures transmitted are relatively small in size, for example between 3 and 50kBytes. This means that TCP will mostly be operating in the slow start phase for the period that it takes to send pictures. The subject matter of claims 8 to 12 addresses this problem by setting a TCP sending parameter at the sending user terminal for the packet switched session so as to optimize radio resource useage. The TCP parameter is different from parameters used for non-combinational multi-media session related packet traffic. In other words, one window size is used when pictures are being transmitted, and another window size is used for other types of data.

The office action appears to have misunderstood the subject matter of claims 8 to 12. TCP sending parameters are typically segment size and/or initial window size. The office action relies on a combination of Zhang and Menon, and in particular points to

paragraph [0185] of Menon. This paragraph refers to a TCP channel underlying network node management protocols. However, there is no mention in either of Zhang or Menon of using a different TCP sending parameter for a combinational multimedia session than that used for a non-combinational multimedia session. Paragraph [0198] of Menon also simply refers to the known concept of a TCP sending window, but makes no mention of using a different sized TCP sending window for combinational multimedia sessions than for non-combinational multimedia sessions.

Similar arguments apply both to claims 8 and 9 as well as new independent claim 17, and the dependent claims are considered to be novel and non-obvious by virtue of their dependency.

D. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly requested.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,
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